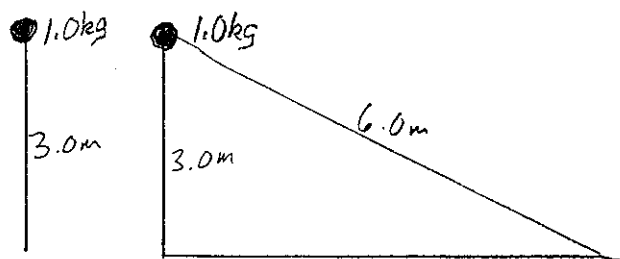
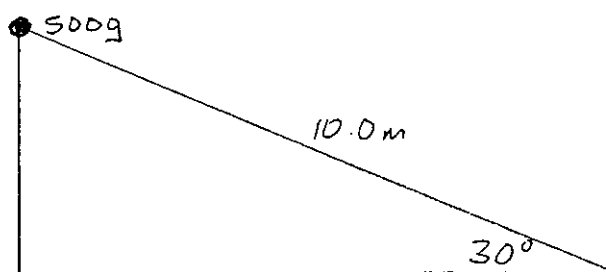


REVIEW WORK POWER AND ENERGY

1. Which requires more work. Raising a 10kg object or lifting a 5.0kg object 4.0m? Raising the 10kg object
2. Which object below has more potential energy? They both have the same potential energy.



3. a) If you do 100J of work to elevate a bucket of water, what is the potential energy of the water? 100J
b) If the object was lifted two times higher, what would the potential energy of the object be? Double
4. If a boulder of mass 10kg is raised to a height so that potential energy is 2000J and then is allowed to fall, what will the boulder's kinetic energy be when it strikes the ground? 200J
5. Given that the amount of work done in a particular situation does not change, what would have to be done to increase the power? Decrease the time it took to do the work.
6. Why will a lighter car generally have better fuel economy than a larger car? (Answer the question referring to work and energy.)
7. How many KW of power is required to raise 60kg of coal to a height of 10.0m in 12.0s? 0.490kW
8. A package has a mass of 15.0kg. A person carries the package from ground level to the fifth floor 21.3m above. Taking the person's weight of 755N into account, how much total work does the person do? $1.92 \times 10^4 \text{ J}$
9. A motor operating a conveyor belt exerts 750.0N on the belt moving it at 7.1m/s. What is the motor's power? 5300W
10. Calculate the potential energy of the ball below 24.5J



- 11 Calculate how far a spring with a constant of 300N/m must be compressed to receive 75J of potential energy. 0.71m
12. A bullet of mass 1.5g is travelling at 120m/s when it strikes a block of wood fastened to a spring with a constant of 150N/m. How far is the spring compressed when the bullet strikes the block? 0.38m
13. An alpha particle with a mass of $4.7 \times 10^{-27} \text{ kg}$ travels at $1.6 \times 10^7 \text{ m/s}$. What is the particle's kinetic energy? $6.02 \times 10^{-13} \text{ J}$
14. A softball player tosses a ball weighing 6.0N a height of 1.2m vertically into the air so it reaches a maximum height of 10.2m. What was the ball's velocity when thrown it left the players hand. 13.3m/s
15. A toy gun has a spring inside with a constant of 50N/m. If the spring is compressed 10cm and a small ball with a mass of 0.015kg is placed in front of the spring before being released, find the ball's velocity as it leaves the gun. 5.8m/s
16. A ball of mass 0.500kg is thrown downward at 1.2m/s from a height of 8.0m above the ground. How fast is it moving when it lands in a hole 3.0m deep. 14.7m/s